

Notice of Allowability

Application No.

10/790,366

Examiner

David S. Blum

Applicant(s)

LYONS ET AL.

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 1/17/06.
2. ☒ The allowed claim(s) is/are 1-4, 8, 9 and 21-28.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

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This action is in response to the amendment filed 1/17/06.

Allowable Subject Matter

1. Claims 1-4, 8-9, and 21-28 are allowed.
2. The following is an examiner's statement of reasons for allowance:

Claim 1 limits the fabrication of a shallow trench isolation to forming a polish stop layer on a substrate, forming a nitride containing layer over the polish stop layer and after forming a trench, removing the nitride containing layer and planarizing the trench (obviously filled) to the surface of the polish stop layer, oxidizing substantially all of the polish stop layer to convert the layer to a field oxide layer. This limitation, in combination with the other limitations of claim 1 is not taught or suggested by the prior art of record. Ajuria (US005837612A) removes the polish stop layer rather than oxidizing it. Tan (US006001706A) oxidizes a side of the polish stop layer and then removes the rest of the layer. Lyons (US005930645A) teaches a polysilicon layer as a replacement for a nitride containing polish stop layer, but does not teach a nitride layer over the polysilicon layer. Lyons also removes the polysilicon layer after oxidizing it.

Claims 2-4, 8-9, and 21-22 are allowed as being properly dependent upon allowed claim

1.

Claim 23 limits the fabrication of a shallow trench isolation to forming a polish stop layer of silicon carbide on a substrate, forming a nitride containing layer over the polish stop

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layer and after forming a trench, removing the nitride containing layer and planarizing the trench (obviously filled) to the surface of the polish stop layer. This limitation, in combination with the other limitations of claim 23 is not taught or suggested by the prior art of record. Ajuria (US005837612A), Tan (US006001706A), and Lyons (US005930645A) all teaches a polysilicon layer as a polish stop layer, but do not teach or suggest a silicon carbide polish stop layer. Olsen (US006555476B1) teaches a silicon carbide polish stop layer as an improvement to a nitride polish stop layer, but also teaches a nitride layer under the polish stop layer rather than over it. There is no teaching or suggestion for a nitride layer over the silicon carbide layer.

Claims 24-28 are allowed as being properly dependent upon allowed claim 23.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Blum whose telephone number is (571)-272-1687) and e-mail address is David.blum@USPTO.gov.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr., can be reached at (571)-272-1702. Our facsimile number all patent correspondence to be entered into an application is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David S. Blum

March 30, 2006